

Reverse Engineering Challenge:

Samsung A897 Mythic

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Introduction

The Samsung A897 Mythic was released by AT&T in November 2009 and is now discontinued. The phone we disassembled did not charge well, had issues with the touchscreen and was generally unusable because of its age. Because of how old it is, there are a few interesting things about it compared to a modern phone, all of which are reasons why we wanted to reverse engineer this phone.



A view of all parts of the disassembled phone

Case:

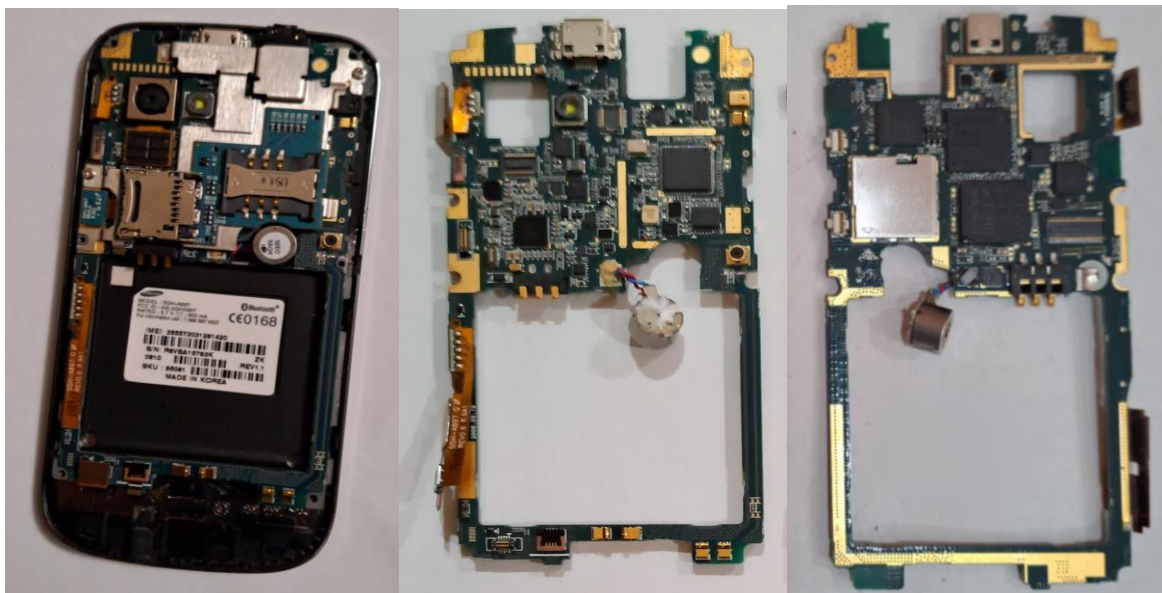
The case of the phone comes in three parts: The front, the back, and the backplate. The backplate of the A897 is easily removable even with just your fingers. Under it reveals the battery, the SIM card and the micro SD slots along with screws to remove the back of the case. Modern phones are quite different with only two parts of the case and most have adhesive holding the back of the phone, making it harder to take off. They also have no reason to make access to the internal phone easy as the SIM and SD are available without removing anything and modern batteries aren't meant to be replaced by users. The front case is more similar, housing the touch LCD screen and interface buttons which are now LED screens and only touch screen buttons today.



The phone without a backplate

Motherboard:

Taking off the back case reveals the internal components of the phone, but the most important part is the motherboard of the phone. It houses and connects all the other parts, joined in some places by contacts but most by soldering. The processor and micro USB port are soldered on while the camera and audio jack are both clipped on to the board. The motherboard contains many individual chips and circuits that perform certain tasks or have certain features. The aforementioned micro USB port translates a signal and/or delivers power, while the camera converts the image it sees into digital information. One of the most important of these chips on this phone is the CPU: The QUALCOMM MSM6290 which does the actual computing of the phone



Motherboard inside phone, motherboard outside camera side (back), screen side (front)

Interface:

The A897, like other phones at the time, shifted away from a physical keyboard to a touchscreen based phone. This process, influenced greatly by Apple and their iPhone means the mythic has 6 buttons but it's still more than today's trend of a volume rocker and power button. The reason for adding prominent pickup and decline call buttons is because phones at a

time were mainly used for calls, at least by the average consumer. All other interactions are with the touchscreen display: A 3.3" 360x640 LCD. The display worked well but the touchscreen did not, so it was hard if not impossible to navigate the phone. LCD stands for liquid crystal display, a display type mostly phased out for LEDs or light emitting diodes.



Front case and LCD screen, back and front

Part List:



Part	Function
1. Screws	Various screws that hold the case of the phone together.
2. Side buttons	Buttons on the side of the phone used to interact with it. A volume

	rocker, power button and lock button.
3. Motherboard	The board that controls and connects all other parts of the phone. It's made out of a circuit board with many chips soldered on that perform the necessary functions of the phone.
4. Camera	The device under the lens of the phone that captures an image and converts it into a digital photo.
5. Heatsinks	Small pieces placed onto parts of the phone that absorb and disperse heat better to prevent overheating.
6. Headphone jack & Speaker	The sound output of the phone. Transmits sound to headphones or if none are connected, to its own speaker.
7. Daughterboard	A secondary board used to extend the function of the motherboard, in this case to house the SIM and micro SD slots. It's used to elevate the slots to be closer to the backplate and be more accessible.
8. Back case	The back hull of the phone.
9. Backplate	A cover for the phone's back.
10. Front case	The front hull of the phone
11. LCD Screen	The screen of the phone that emits

	light through a liquid crystal panel to display an image. It is also a touchscreen.
12. Front buttons	The main interface of the phone, a pickup, decline, and home button.

Credits:

<https://electronics360.globalspec.com/article/3571/samsung-mythic-sgh-a897-mobile-phone-teardown>

https://www.ifixit.com/Device/Samsung_Mythic_SGH-a897

https://www.gsmarena.com/samsung_a897_mythic-2996.php